

-39-

What is claimed is:

1. A training device for use in guiding and coordinating a user's body position when executing a golf swing like motion, which comprises:

5 a first actuator for monitoring the movement of the upper torso of the user during the motion, and for applying a resistance force to the upper torso to guide the user in moving the upper torso in a desired manner;

10 a second actuator for monitoring the movement of the wrists and arms, and for applying a resistance force to the wrists and arms to guide the user in moving the wrists and arms in a desired manner; and

a control unit connected to the first and second actuators for recording the movement monitored by the actuators and for operating the actuators to apply the resistance forces.

2. A training device as in claim 1, wherein the control unit also comprises a display for showing the user if the user's movements are within a predetermined tolerance of the desired movements.

3. A training device as in claim 2, wherein the display comprises a screen display for showing a plot of swing parameters as a function of time.

4. A training device as in claim 2, wherein the display comprises an indicator to indicate whether swing parameters are within the predetermined tolerance.

5. A training device as in claim 4, wherein the indicator comprises a plurality of indicating lights which indicate whether swing parameters are within the predetermined tolerance.

-40-

6. A training device as in claim 1, for use in guiding and coordinating a user's body position and lateral, vertical, and rotational movement when executing a golf swing, the golf swing including a back swing, a down swing, and a follow through, the golf swing being conducted relative to a target line
5 that extends generally horizontally from a golf ball position to an intended target, wherein the device also comprises:

a yoke for engaging the upper torso of the user;
a rotatable member connected to the yoke; and
a guide assembly for guiding and coordinating the lateral, vertical, and
10 rotational movement of the rotatable member as the user executes the golf swing.

7. The training device as in claim 1, wherein the rotatable member comprises an upper section and a lower section, the upper section being connected to the lower section, the upper section having a different axis of rotation than the lower section.

8. The training device as in claim 1, wherein the yoke comprises:
a front portion for positioning generally adjacent to the user's chest;
a back portion for positioning generally adjacent to the user's back; and
a connecting portion connecting the front portion and the back portion.

9. The training device as in claim 8, wherein the connecting portion includes means for adjusting the distance between the front portion and the back portion.

10. The training device as in claim 1, further comprising:
a base; and

-41-

at least one upright connected to and extending from the base, the upright connected to and supporting the guide assembly.

11. The training device as in claim 10 further comprising a brace connected to and extending from the base, the brace making contact with and limiting the movement of at least one of the user's legs as the user executes a golf swing.

12. A training device for use in guiding and coordinating a user's body position and lateral, vertical, and rotational movement when executing a golf swing, the golf swing including a back swing, a down swing, and a follow through, the golf swing being conducted relative to a target line that extends
5 generally horizontally from a golf ball position to an intended target, the device comprising:

a yoke for engaging the upper torso of the user, the yoke including an attachment point for being positioned above and intermediate the user's shoulders;

10 a rotatable member having an end connected to the attachment point of the yoke and having an axis of rotation lying within a first plane that is generally parallel to the target line;

a first actuator attached to the rotatable member for monitoring the movement of the upper torso of the user during the golf swing,
15 and for applying a resistance force to the upper torso to guide the user in moving the upper torso in a desired manner;

a guide assembly for maintaining the orientation of the rotatable member such that a first angle between the first plane and a generally horizontal plane that contains the target line and a
20 second angle between the axis of rotation of the rotatable member and a line of intersection between the first plane and the generally horizontal plane both remain constant while the rotatable member simultaneously rotates and moves laterally

-42-

25 generally parallel to the target line away from the target and toward the generally horizontal plane as the user executes the back swing and counter-rotates and moves laterally generally parallel to the target line toward the target and away from the generally horizontal plane as the user executes the down swing and the follow through; and

30 a control unit connected to the first actuator for recording the movement monitored by the actuator and for operating the actuator to apply the resistance force.

13. The training device as in claim 12, wherein the rotatable member comprises an upper section and a lower section, the upper section having an axis of rotation that is fixed generally perpendicular to the horizontal plane, the lower section being connected to the upper section and having an
5 axis of rotation lying within a first plane that is generally parallel to the target line and an end connected to the attachment point of the yoke, the orientation of the lower section of the rotatable member being maintained such that a first angle between the first plane and a horizontal plane that contains the target line and a second angle between the axis of rotation of the rotatable member
10 and a line of intersection between the first plane and the horizontal plane both remain constant while the rotatable member simultaneously rotates and moves laterally generally parallel to the target line away from the target and toward the horizontal plane as the user executes a back swing and counter-rotates and moves laterally generally parallel to the target line toward the
15 target and away from the horizontal plane as the user executes a down swing and follow through.

14. The training device as in claim 12, wherein the yoke comprises:
a front portion for positioning generally adjacent to the user's chest;
a back portion for positioning generally adjacent to the user's back; and

-43-

5 a connecting portion connecting the front portion and the back portion
 and extending to an attachment point for positioning above and
 intermediate the user's shoulders.

15. The training device as in claim 14, wherein the connecting portion includes means for adjusting the distance between the front portion and the back portion.

16. The training device as in claim 12, wherein the guide assembly permits the first angle, the second angle, and the distance between the end of the rotatable member and the horizontal plane to be adjusted before the user executes a golf swing.

17. The training device as in claim 12, wherein the guide assembly comprises:

5 a shaft having a first gear fixedly attached at one end and a cam follower attached at the other end, the first gear meshing with a second gear fixedly attached to the rotatable member, the axis of the second gear being concentric to the axis of rotation of the rotatable member;

 a camming surface; and

10 a housing for journalling the shaft and the rotatable member in a fixed orientation relative to each other, the rotatable member rotating and moving laterally generally parallel to the target line and with respect to the horizontal plane as the cam follower passes along in contact with the camming surface.

18. The training device as in claim 17, wherein the camming surface permits the rotatable member to move laterally generally parallel to the target line about 4 inches and toward the horizontal plane about 0.75 inches while

-44-

the rotatable member rotates up to about 90° on the axis of rotation as the
5 user executes a back swing, and permits the rotatable member to move
laterally generally parallel to the target line about 8 inches and away from the
horizontal plane about 2.5 inches while the rotatable member counter-rotates
up to about 180° on the axis of rotation as the user executes a down swing
and follow through.

19. The training device as in claim **12**, further comprising:
a base; and
at least one upright connected to and extending from the base, the
upright connected to and supporting the guide assembly.

20. The training device as in claim **19**, wherein the upright permits
the first angle, the second angle, and the distance between the end of the
rotatable member and the horizontal plane to be adjusted before the user
executes a golf swing.

21. The training device as in claim **19**, further comprising a brace
connected to and extending from the base, the brace making contact with and
limiting the movement of at least one of the user's legs as the user executes a
golf swing.

22. The training device as in claim **14**, further comprising:
an extensible rod having a longitudinal axis, a first end, and a second
end, the first end of the extensible rod being pivotally connected
to the front portion of the yoke proximal to the user's sternum;
5 a club holder for attachment to the grip end of the golf club;
a hinge connecting the club holder to the second end of the extensible
rod, the hinge having a pivot axis being disposed generally
perpendicular to the longitudinal axis of the extensible rod; and

-45-

10 a second actuator connected to the club holder for monitoring pivoting
 of the hinge and associated movement of the user's wrists
 holding the golf club, and for applying a resistance force to the
 wrists to guide the user in moving the golf club in a desired
 manner, the second actuator being operatively connected to the
 control unit.

23. The training device as in claim 22, wherein the extensible rod
comprises an upper portion terminating in the first end and a lower portion
terminating in the second end, the upper portion and the lower portion being
slidably connected so as to permit movement relative to each other along the
5 longitudinal axis.

24. The training device as in claim 23, wherein the upper portion
and the lower portion are rotatably connected so as to permit rotation relative
to each other on the longitudinal axis.